

CLAIMS

1. In a communication system comprising at least one network, including network entities which provide connectivity to user equipment, a method of connecting the user equipment to the at least one network comprising:

establishing a secure tunnel which provides connection between the user equipment and one of the network entities; and

authenticating the user equipment with another of the network entities;

and wherein

the authenticating of the user equipment with the another of the network entities occurs at least partially simultaneously with the establishing of the secure tunnel.

2. A method in accordance with claim 1 wherein:

the establishing the secure tunnel and the authenticating the user equipment with the network begin simultaneously.

3. A method in accordance with claim 1 wherein:

the establishing the secure tunnel begins before the authenticating the user equipment with the network.

4. A method in accordance with claim 3 wherein:
during a time between a beginning of the establishing the secure tunnel with the one of the network entities and a beginning of the authenticating the user equipment with the another of the network entities, the at least one network communicates with the user equipment to confirm that the request from the user equipment to establish a secure tunnel is not part of a denial of service attack.
5. A method in accordance with claim 4 wherein:
communication during the time includes at least one of a request for an identification of the user equipment and a request for capability of the user equipment to support at least one data protocol.
6. A method in accordance with claim 1 wherein:
the one network entity comprises a server and the another network entity comprises a server.
7. A method in accordance with claim 2 wherein:
the one network entity comprises a server and the another network entity comprises a server.

8. A method in accordance with claim 3 wherein:
the one network entity comprises a server and the another network entity comprises a server.
9. A method in accordance with claim 4 wherein:
the one network entity comprises a server and the another network entity comprises a server.
10. A method in accordance with claim 5 wherein:
the one network entity comprises a server and the another network entity comprises a server.
11. A method in accordance with claim 1 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.
12. A method in accordance with claim 2 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

13. A method in accordance with claim 3 comprising:

an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

14. A method in accordance with claim 4 comprising:

an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

15. A method in accordance with claim 5 comprising:

an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

16. A method in accordance with claim 6 comprising:

an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

17. A method in accordance with claim 7 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

18. A method in accordance with claim 8 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

19. A method in accordance with claim 9 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

20. A method in accordance with claim 10 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

21. A method in accordance with claim 1 wherein:
the user equipment is wirelessly connected to the at least one network.

22. A method in accordance with claim 2 wherein:
the user equipment is wirelessly connected to the at least one network.
23. A method in accordance with claim 3 wherein:
the user equipment is wirelessly connected to the at least one network.
24. A method in accordance with claim 14 wherein:
the access network communicates with the user equipment to confirm
that the request from the user equipment to establish a secure tunnel is not part of a
denial of service attack.
25. A method in accordance with claim 24 wherein:
communication during the time includes at least one of a request
for an identification of the user equipment and a request for capability of the user
equipment to support at least one data protocol.
26. A method in accordance with claim 6 wherein:
the user equipment is wirelessly connected to the at least one network.
27. A method in accordance with claim 11 wherein:
the user equipment is wirelessly connected to the at least one network.

28. A method in accordance with claim 1 wherein:
the at least one network comprises an access network and a home network.
29. A method in accordance with claim 1 wherein:
the at least one network comprises a home network.
30. A method in accordance with claim 1 wherein:
the at least one network comprises a visited network
31. A communication system comprising at least one network, including network entities which provide connectivity to user equipment and wherein:
a secure tunnel is established which provides connection between the user equipment and one of the network entities, the user equipment is authenticated with another of the network entities, and the authenticating of the user equipment with the another of the network entities occurs at least partially simultaneously with the establishing of the secure tunnel.
32. A system in accordance with claim 31 wherein:
the establishing the secure tunnel and the authenticating the user equipment with the network begin simultaneously.

33. A system in accordance with claim 31 wherein:
the establishing the secure tunnel begins before the authenticating the user equipment with the network.

34. A system in accordance with claim 33 wherein:
during a time between a beginning of the establishing the secure tunnel with the one of the network entities and a beginning of the authenticating the user equipment with the another of the network entities, the at least one network communicates with the user equipment to confirm that the request from the user equipment to establish a secure tunnel is not part of a denial of service attack.

35. A system in accordance with claim 34 wherein:
communication during the time includes at least one of a request for an identification of the user equipment and a request for capability of the user equipment to support at least one data protocol.

36. A system in accordance with claim 31 wherein:
the one network entity comprises a server and the another network entity comprises a server.

37. A system in accordance with claim 31 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

38. A system in accordance with claim 31 wherein:
the user equipment is wirelessly connected to the at least one network.

39. A system in accordance with claim 31 wherein:
the access network communicates with the user equipment to confirm that the request from the user equipment to establish a secure tunnel is not part of a denial of service attack.

40. A user equipment in a communication system comprising at least one network, including network entities which provide connectivity to the user equipment and wherein:

a secure tunnel is established which provides connection between the user equipment and one of the network entities, the user equipment is authenticated with another of the network entities, and the authenticating of the user equipment with the another of the network entities occurs at least partially simultaneously with the establishing of the secure tunnel.

41. A user equipment in accordance with claim 40 wherein:
the establishing the secure tunnel and the authenticating the user
equipment with the network begin simultaneously.
42. A user equipment in accordance with claim 40 wherein:
the establishing the secure tunnel begins before the authenticating the
user equipment with the network.
43. A user equipment in accordance with claim 42 wherein:
during a time between a beginning of the establishing the secure
tunnel with the one of the network entities and a beginning of the authenticating the
user equipment with the another of the network entities, the at least one network
communicates with the user equipment to confirm that the request from the user
equipment to establish a secure tunnel is not part of a denial of service attack.
44. A user equipment in accordance with claim 43 wherein:
communication during the time includes at least one of a request
for an identification of the user equipment and a request for capability of the user
equipment to support at least one data protocol.

45. A user equipment in accordance with claim 40 wherein:
the one network entity comprises a server and the another network entity comprises a server.

46. A user equipment in accordance with claim 40 comprising:
an access network which provides connection of the user equipment to the network, the secure tunnel is established between the user equipment and the access network and the one network entity is part of the access network.

47. A user equipment in accordance with claim 40 wherein:
the user equipment is wirelessly connected to the at least one network.

48. A user equipment in accordance with claim 40 wherein:
the access network communicates with the user equipment to confirm that the request from the user equipment to establish a secure tunnel is not part of a denial of service attack.